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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 09/581,007 | 07/24/2000 | GEORG LOHR | 1384.1036 | 2196 |
| 21171 | 7590 | 12/01/2003 | EXAMINER | |
| STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 | | | GHULAMALI, QUTBUDDIN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2631 | 12 |
| DATE MAILED: 12/01/2003 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/581,007 | LOHR, GEORG | |
| | Examiner | Art Unit | |
| | Qutub Ghulamali | 2631 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 July 2000.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-36 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 24 July 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawing (fig. 1) is objected to under 37 CFR 1.83(a) because they fail to show description of each blocks 1-5 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
4. Claims 1, 10, 17, 19, 28, 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 19 the phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Similarly, the phrase "optional" renders the claims 1, 10, 17, 19, 28, 35 indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-16, 19-34, are rejected under 35 U.S.C. 102(e) as being anticipated by Fullerton et al (US Patent 5,995,534).

Consider claims 1, 2, 3, 21, Fullerton et al teaches (figs. 9, 10) a transmitter 901 and a receiver 903 employing a single subcarrier ultrwide-band impulse radio channel, the transmitter 901 and the receiver 903 are separated by a propagation medium 905, such as air, space, or other medium cable for propagating ultrwide-band signals, the transmitter 901 comprises a time base 1002 that generates a periodic timing signal 1004, the time base 1002 comprises a voltage controlled oscillator (VCO), or the like, the periodic timing signal 1004 is supplied to a code source 1006 and to a code time modulator 1008, the output of the code time modulator 1008 is

the code timing signal 1014,, the signal 1014 modulated by 1016 generates a modulated, coded timing signal 1026 that is sent to output stage 1028 and propagated as emitted signal 1012, with inherently low power spectral densities (see col. 1, lines 38-40; col. 2, lines 10-27, 48-54; col. 6, lines 42-48; col. 7, lines 3-6; col. 13, lines 20-50; col. 14, lines 52-65).

Regarding claims 4, 5, 7, 8, 22, 23, 25, 26, Fullerton et al teaches transmitter 901 comprises a time base 1002 that generates a periodic timing signal 1004, the time base 1002 further comprises a voltage controlled oscillator (VCO) (col. 13, lines 34-40; col. 19, lines 40-50). .

With regards to claims 6, 9, 10, 24, 27, 28, Fullerton et al teaches, the subcarrier generation and modulator generates a signal that is modulated by the information signal by frequency modulation (FM) techniques, amplitude modulation (AM), phase modulation, frequency shift keying (FSK) phase shift keying (PSK), pulsed FM, or the like (col. 3, lines 60-67).

Regarding claims 13, 14, 15, 31, 32, 33, Fullerton et al teaches, FM subcarrier embodiment utilize a phase-locked loop (PLL) frequency demodulator (col. 18, lines 9-15)

Regarding claims 11, 12, 29, 30, Fullerton et al teaches, each of the modulators (1008, 1016 and 1208) functions to time delay a signal (e.g., the periodic timing signal 1004) according to information conveyed by a trigger signal (e.g., code signal 1010 or modulated subcarrier signal 1024.) thus, each modulator is therefore considered a delay generator (col. 19, lines 50-57).

Regarding claims 16, 34, Fullerton et al teaches, the address 2105 provided by address counter 2104 is used to access a PN code ROM 2106, the ROM 2106 stores PN (pseudo-

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random noise) code of a predetermined modulo, each address 2105 output from the address counter 2104 accesses a storage location in the ROM 2106, which in response thereto, outputs a PN code 2108, the PN codes are used to time-position modulate pulses ahead or back in time for channelization and spreading of the monocycle pulses of the impulse radio signal (col. 21, lines 27-67; col. 22, lines 1-3).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 17, 18, 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al (US Patent 5,995,534) in view of Ohashi et al (US Patent 6,240,126).

As applied to claims 1-16, 19-34 above, Fullerton et al teaches every feature of the claimed invention, but does not explicitly teach controller for receiver synchrony with the modulation in said transmitter and receiver. In the same field of endeavor, Ohashi et al with reference to claims 17, 35, teaches (figs. 1, 8a), the controller 35 control the up-converter 23 to multiply the modulation signal t with a frequency hopping signal supplied from the PLL circuit 25 creating a frequency spread modulation signal u and transmitted via the switch 27 and the antenna 28. In a similar way the receiving frequency spread modulation signal u from the communication device is supplied to the low noise amplifier 31 via antenna 28 and switch 27, multiplied by the frequency hopping signal supplied from the PLL circuit 25 creating a

frequency de-spread modulation signal t, the signal t is supplied via the interface 21 to the external circuit via a reception data path 106.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fullerton et al to provide for a controller circuit to synchronize modulation function between the transmit and receive communication units to enhance the spectral power density of the transmitted/receive signals as taught by Ohashi et al, see col. 6, lines 23-33, 50-59; col. 15, lines 40-55.

Similarly, Fullerton et al teaches every feature of the claimed invention referenced above, but does not explicitly teach an additional synchronization signal for controlling the modulation of said transmitter or transmission circuit and receiver. In the same field of endeavor, Ohashi et al with reference to claims 18, 36, (fig. 8a), even though does not show additional synchronization signal, teaches a transmit and receive circuit identical in nature utilize the PLL perform communication during the up conversion and down conversion of signal t in the modulator via the controller 35, see figs. 8a, 8b. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fullerton et al to include the circuit consisting of the PL perform modulation control function as taught by Ohashi et al to enhance the spectral power density of the transmitted/receive signals.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lomp (US Patent 6,611,548) provide information related to communication systems.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (703) 305-7868.

The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 703 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703 305-3988.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4750.

QG.
November 20, 2003



TESFALDET BOCURE
PRIMARY EXAMINER